

# REPLACEMENT SHEET

1/4

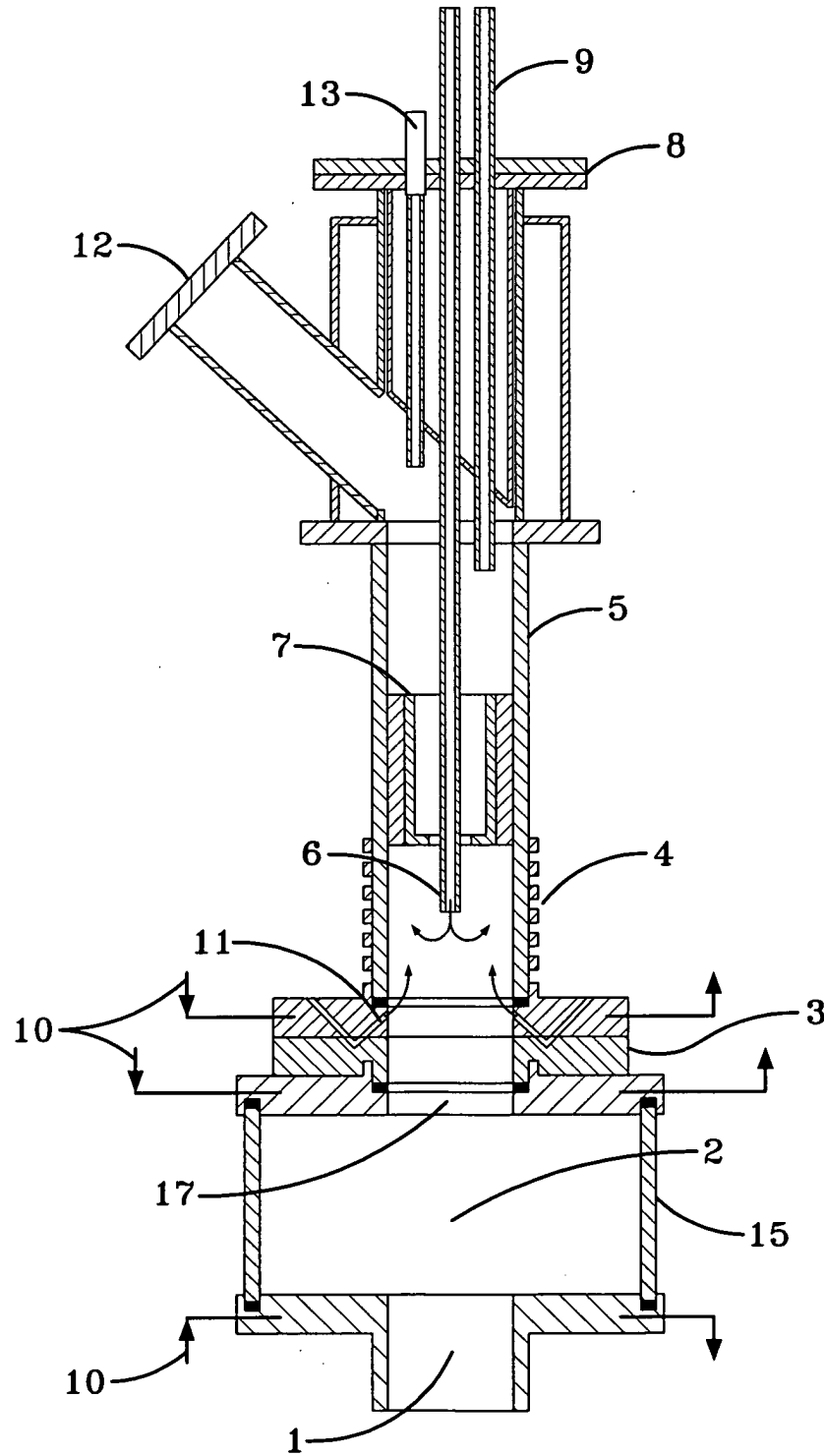


FIG-1

# REPLACEMENT SHEET

2/4

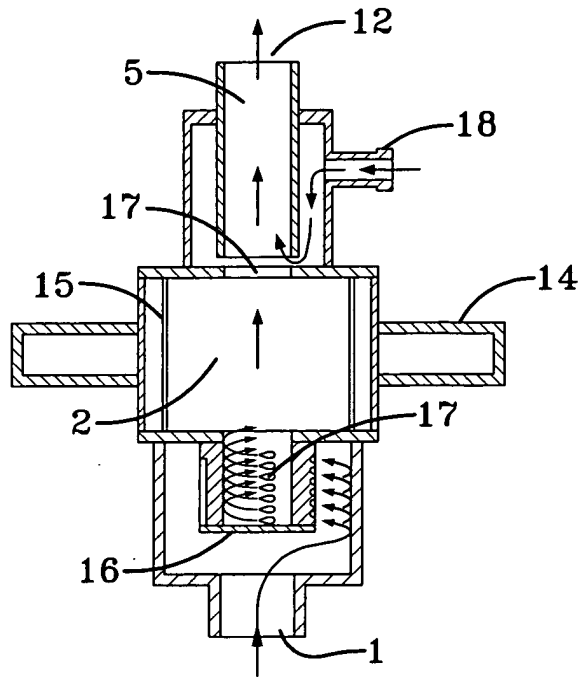


FIG-2

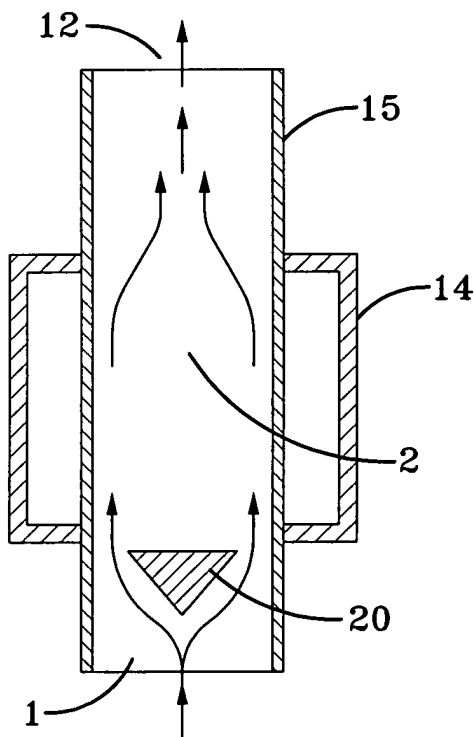


FIG-3

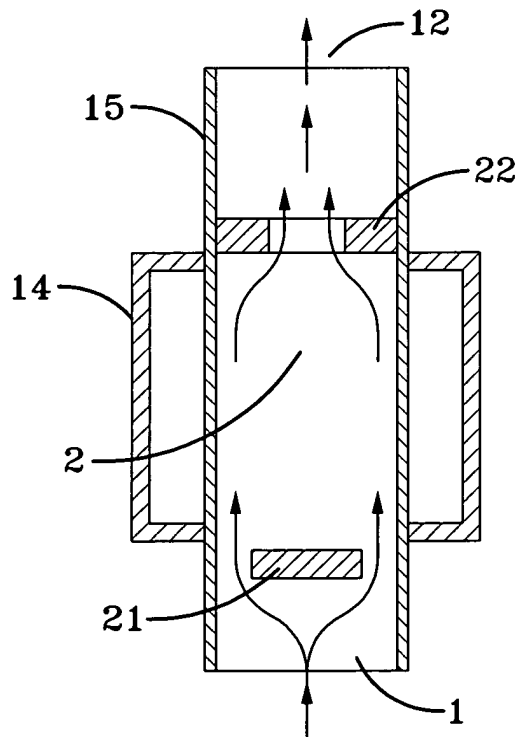


FIG-4

NEW SHEET

3/4

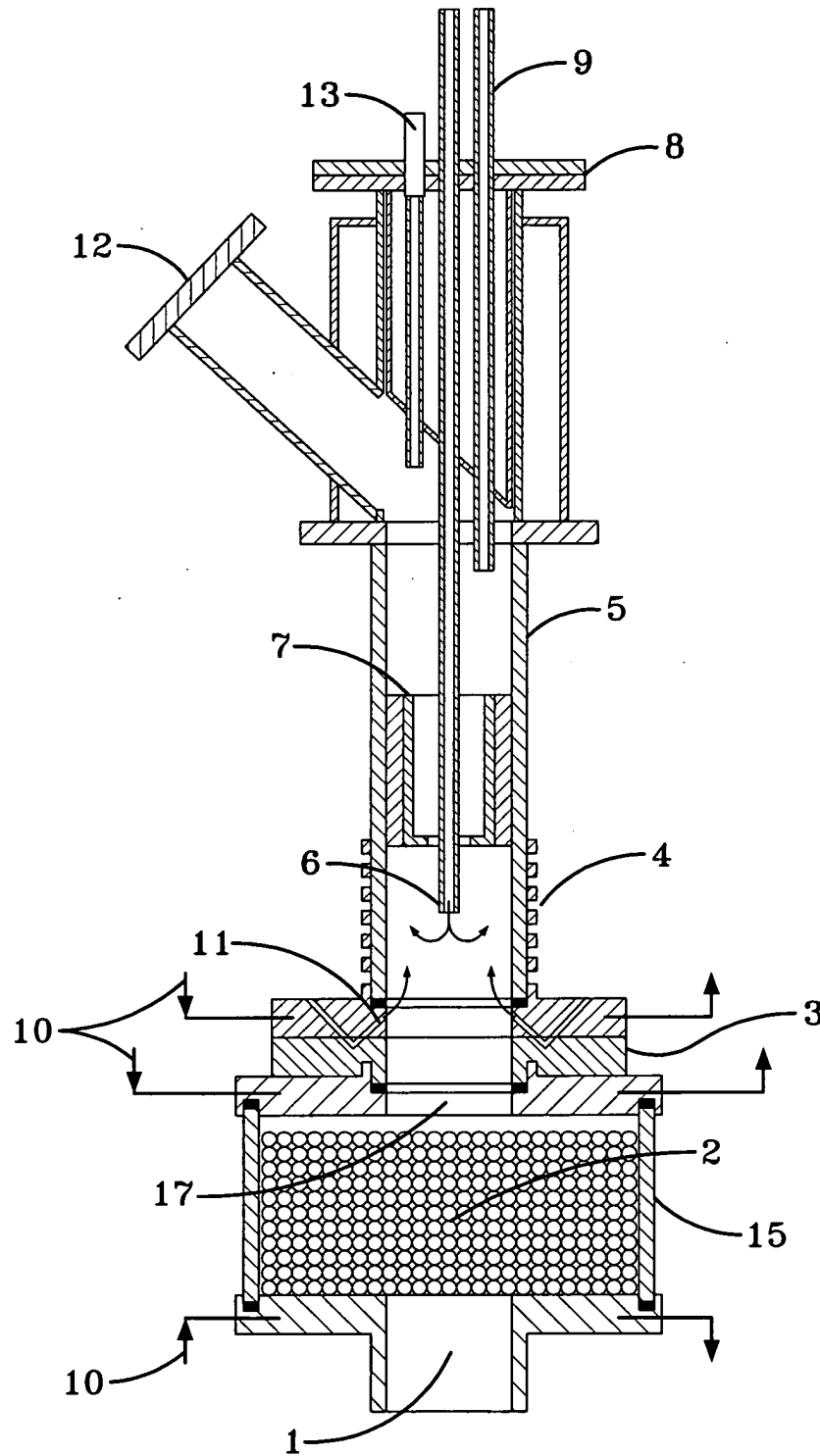


FIG-5

# NEW SHEET

4/4

Production of synthesis gas without addition of hydrogen				
$\text{CO}_2 + \text{CH}_4 \rightarrow 2 \text{CO} + 2 \text{H}_2$			Ar/CO <sub>2</sub> /CH <sub>4</sub> =68/18/13%	
P=4500W		V=40 l/min		No Catalyst
Conversion			Yield	
CO <sub>2</sub>	CH <sub>4</sub>	H <sub>2</sub>	CO	H <sub>2</sub>
0.91	0.99	—	0.83	0.93

Production of synthesis gas with addition of hydrogen				
$\text{CO}_2 + \text{CH}_4 \rightarrow 2 \text{CO} + 2 \text{H}_2$			Ar/CO <sub>2</sub> /CH <sub>4</sub> /H <sub>2</sub> =70/15/11/4%	
P=5000W		V=40 l/min		No Catalyst
Conversion			Yield	
CO <sub>2</sub>	CH <sub>4</sub>	H <sub>2</sub>	CO	H <sub>2</sub>
0.95	0.99	0.10	0.96	0.95

Production of acetylene				
$\text{CO}_2 + \text{C}_2\text{H}_4 \rightarrow \text{C}_2\text{H}_2 + \text{CO} + \text{H}_2\text{O}$			Ar/CO <sub>2</sub> /C <sub>2</sub> H <sub>4</sub> =73/21/6%	
P=3500W		V=38.5 l/min		No Catalyst
Conversion			Yield	
CO <sub>2</sub>	C <sub>2</sub> H <sub>4</sub>	H <sub>2</sub>	CO	C <sub>2</sub> H <sub>2</sub>
0.21	0.55	—	0.17	0.07

Production of benzene on copper catalysts				
$2 \text{CO}_2 + 2 \text{C}_2\text{H}_4 + 3 \text{H}_2 \rightarrow \text{C}_6\text{H}_6 + 4 \text{H}_2\text{O}$			Ar/CO <sub>2</sub> /C <sub>2</sub> H <sub>4</sub> /H <sub>2</sub> =66/19/9/6%	
P=4500W		V=42.5 l/min		Copper Catalyst
Conversion			Yield	
CO <sub>2</sub>	C <sub>2</sub> H <sub>4</sub>	H <sub>2</sub>	CO	C <sub>6</sub> H <sub>6</sub>
0.37	0.23	0.65	0.25	0.02

FIG-6